A Decade of Platform-Based Design: A look backwards, a look forwards

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Abstract:

It has been 10 years since a group of us wrote the book “Surviving the SoC Revolution: A Guide to Platform-Based Design”, and almost a decade since I gave a talk at VLSI 2000 in Kolkata about this theme. The intervening time has seen considerable development in the platform based design approach. It has become the near ubiquitous approach to the development of complex SoCs for many application areas. It has branched out from its original, mainly hardware-centric focus, to assume much more of a system and software focus complementing hardware. And the nature of platform architectures have changed: we now see many more embedded processors of all kinds in SoC platforms, from application-specific processors (ASIPs) to clusters of homogeneous or heterogeneous processing engines and many integrated subsystems each including one or more ASIPs or general purpose cores.

This talk will look back at the past decade in platform based design and describe the evolution of architectures, design approaches and tools, and also look forward at the next decade or two and try to paint some possible scenarios for the future evolution of the platform-based approach. As we move towards new generations of design tools and higher level design approaches, what will be the main forms of platforms in future and how will designers use them?

Speaker Bio:

Grant Martin is a Chief Scientist at Tensilica, Inc. in Santa Clara, California. Before that, Grant worked for Burroughs in Scotland for 6 years; Nortel/BNR in Canada for 10 years; and Cadence Design Systems for 9 years, eventually becoming a Cadence Fellow in their Labs. He received his Bachelor’s and Master’s degrees in Mathematics (Combinatorics and Optimisation) from the University of Waterloo, Canada, in 1977 and 1978.

Grant is a co-author or co-editor of nine books dealing with SoC design, SystemC, UML, modelling, EDA for integrated circuits and system-level design, including the first book on SoC design published in Russian. His most recent book, ESL Design and Verification, written with Brian Bailey and Andrew Piziali, was published by Elsevier Morgan Kaufmann in February, 2007.

He was co-chair of the DAC Technical Program Committee for Methods for 2005 and 2006. His particular areas of interest include system-level design, IP-based design of system-on-chip, platform-based design, and embedded software. Grant is a Senior Member of the IEEE.